REMARKS

Claims 1 to 18, 20 to 23, and 35 to 41 are pending in this application. Applicants have cancelled claims 26 to 31 without prejudice as directed to a non-elected invention, and have also cancelled claims 19 and 32 to 34 without prejudice. Applicants have amended claims 1, 10, and 18, and added new claims 35 to 41. The amendments and new claims add no new matter. In particular, applicants have amended claim 1 to add the concept that the array includes two or more different probes or sets of probes directed to two or more different types of targets selected from the group including viruses, bacteria, fungi, self-antigens, poisons, genetic disorders of the subject, and therapeutic markers of the subject. These concepts are supported in original claim 10, as well as throughout the application, e.g., at page 19, lines 21+, and in the Examples.

Applicants have amended claim 10 to correspond with newly amended claim 1, and have amended claim 18 to more specifically describe the particular probes in the array as genetic markers of susceptibility of the subject. Applicants have amended claim 21 to more specifically define the first target. These concepts are also supported throughout the application, e.g., at page 19, lines 21+, and in the Examples.

The new claims are also supported in the application. In particular, the different kits, and the concept of including probes for five or more different targets, are supported in the Examples of the application. See, e.g., Example 6, and page 58, lines 21-22.

Restriction

Applicants confirm the telephone election of Group I, claims 1 to 25 and 32 to 34, without traverse, and have cancelled claims 26 to 32 without prejudice.

Specification

According to the Office Action, "Figures 18A & 18B are designated in the Drawings but the specification only refers to Figure 18." Applicants have corrected this oversight in the specification. The Examiner also noted that "Figures 34D & 34E are located in the drawings but

the specification only refers to Figures 34A-C." Again, applicants have amended the specification to correct this error.

Drawings

The Office Action asserts that FIGs. 38A-D could not be located in the file and requests replacement. Applicants have enclosed a replacement copy of FIGs. 38A-D (one sheet). This was page 38 of the 38 pages of drawings originally filed.

35 U.S.C. § 102

Claims 1-8, 10, 12-17, 18-20, 24-25, and 32-34 have been rejected as being allegedly anticipated by Balch, U.S. Patent No. 6,083,763. Applicants traverse this rejection for the following reasons.

> According to the Office Action (at page 4), Balch describes
>
> a method of determining [a] cause of one or more medical symptoms by obtaining a biological sample from subject, obtaining an array of different probes that selectively interact with target associated with different known cause of one or medical symptoms, applying sample to probes so they interact, detecting and analyzing and the device and system of using such an array (see whole document esp. abstract, col. 5 lines 16-30, particularly col. 8 & col. 34 lines 5-12). They teach the use of probes which are nucleic acids, antigens or antibodies (see col. 1 lines 25-30). They teach testing human sample or DNA (see col. 33 line 57 & 66). They teach use of thiol or amino groups for covalent binding of ligands (see col. 21 line 35-40).

Applicants submit that the goal of their claimed invention and the goal of Balch's patent disclosure are very different. Balch focuses on complicated multiplexed, hierarchical, molecular arrays that operate in parallel to analyze samples. The devices include nucleic acid capture probes, small molecule capture probes, or protein-based capture probes. Although Balch mentions the general concept of searching for the cause of a defined set of medical symptoms, he limits the possible causes to disease "organisms" (see, e.g., col. 4, lines 16-17, and col. 5, lines 20-23), and fails to describe or suggest other possible causative agents. Balch focuses on the

specific types of probes and how to make his devices, not on the specific targets, and certainly not on combinations of different types of targets.

On the other hand, applicants' methods focus on the types of targets and combinations of different types of targets. For example, claim 1 covers a method of determining a cause of one or more medical symptoms exhibited by a subject using an "an array of different probes or different sets of probes, wherein each probe or set of probes selectively interacts with a target associated with a different known cause of the one or more medical symptoms, and wherein the array includes (i) a first probe or set of first probes directed to a first target selected from the group comprising viruses, bacteria, and fungi; and (ii) a second probe or set of second probes directed to a second target selected from the group comprising self-antigens, poisons, genetic disorders of the subject, therapeutic markers of the subject, and therapeutic markers of the target."

As amended, claim 1 clearly requires at least one probe (the second probe) directed to targets that Balch does not even consider, much less use, in his complex arrays. Nowhere have applicants found any suggestion in Balch to use probes directed to targets such as self-antigens, poisons, or genetic disorders of the subject as possible causes of a medical symptom. Thus, Balch cannot anticipate applicants' claim 1, or claims 2-17, and 20, which depend from claim 1.

Applicants' claim 18 recites a method of determining the susceptibility of a subject to a known cause of one or more medical symptoms by using an "array of different probes or different sets of probes, wherein each probe or set of probes selectively interacts with a genetic marker associated with the susceptibility of the subject to a different known cause of the one or more medical symptoms."

Balch simply does not describe any method of determining the susceptibility of a subject to a cause of one or more medical symptoms, yet the Office Action lumps independent claim 18, and its dependent claim 19, together with claims 1 through 17. Although Balch describes standard diagnostic tests of known genetic disorders, he does not link this type of testing to medical symptoms, and thus fails to describe testing genetic markers for a subject's susceptibility to a medical symptom. For example, Balch does not describe any assay in which a subject's

sample is tested for a genetic marker that indicates the subject would be either tolerant or susceptible to infection by a particular pathogen. Thus, Balch does not anticipate claim 18.

Thus, Balch does not anticipate any of claims 1 to 18, or 20, and applicants respectfully request that the Examiner withdraw this rejection. Applicants have cancelled claims 24, 25, and 32 to 24, and thus the rejection is moot with respect to these claims.

35 U.S.C. § 103

Claims 9 and 11 have been rejected as being allegedly unpatentable over Balch in view of Au-Young et al., U.S. Patent No. 6,309,821. While the Office Action admits that Balch does not describe the use of samples from a deceased subject or the use of biopsies, Au-Young is said to describe such samples. Applicants submit that Au-Young adds nothing of relevance to the presently claimed invention, because Au-Young describes DNA encoding a PAC10 human homolog, and has nothing to do with methods or kits for determining a cause of one or more medical symptoms exhibited by a subject.

Even if one of ordinary skill in the art would have been motivated to apply Au-Young's description to Balch's assay, which applicants do not concede, Au-Young does not describe the features of applicants' claim 1 that Balch lacks discussed above with respect to the rejection over Balch alone. Therefore, claims 9 and 11 are not rendered obvious by the combination of these patents.

Next, claims 21 to 23 have been rejected as being allegedly unpatentable over Balch in view of Persing et al., U.S. Patent No. 5,643,723. Applicants traverse this rejection for the following reasons.

The Office Action admits that Balch does not describe therapeutic optimization factors, but alleges that Persing describes "detecting M. tuberculosis mutants particularly rifampin resistant by using probes that target rpOB (see whole doc. esp. abstract)" (Office Action at page 6). According to the Office Action, "[o]ne of ordinary skill in the art would have motivated to apply Persing et al.'s teachings of detecting drug resistance genes to Balch's detection method in order to detect patients who have drug resistant pathogens. It would have prima facie obvious to

detect drug resistance in pathogens as taught by Persing et al. in order to correctly confirm disease diagnosis such as TB and provide correct drug regimen" (id.).

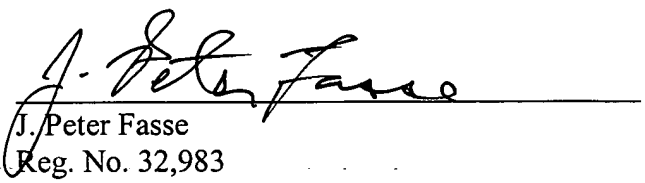
Applicants respectfully disagree. Applicants' claim 21 recites a method of determining a cause of one or more medical symptoms in a subject and assessing the suitability of one or more therapeutic agents to treat the cause of the symptoms. For this method, one must use an array of different probes or different sets of probes, wherein a first probe or set of probes selectively interacts with a first target selected from the group including self-antigens, poisons, genetic disorders of the subject, and a second, different probe selectively interacts with a second target associated with a therapeutic optimization factor. Neither Balch nor Persing describes the use of an array that includes the claimed first probe. Thus, even if Balch and Persing were combined as the Examiner alleges, the resulting method would not be applicants' claimed invention. As a result, applicants submit that claims 21 to 23 are patentable, and request that the Examiner withdraw this rejection.

CONCLUSION

Enclosed is a $210.00 check for the enclosed Petition for Two-Month Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 12877-006001.

Respectfully submitted,

Date: 3-8-04



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